

RECEIVED

AUG 31 2001

RECEIVED

P#8

1644

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/294,298

DATE: 08/18/2000
TIME: 12:46:34

Input Set : A:\48235169.app
Output Set: N:\CRF3\08182000\I294298.raw

ENTERED

```

3 <110> APPLICANT: HUGANIR, RICHARD L.
4 KIM, GJEEHAE
6 <120> TITLE OF INVENTION: SIGNAL TRANSDUCING SYNAPTIC MOLECULES AND USES THEREOF
8 <130> FILE REFERENCE: 48235/1699
10 <140> CURRENT APPLICATION NUMBER: 09/294,298
11 <141> CURRENT FILING DATE: 1999-04-19
13 <150> PRIOR APPLICATION NUMBER: 60/082,690
14 <151> PRIOR FILING DATE: 1998-04-22
16 <150> PRIOR APPLICATION NUMBER: 60/082,717
17 <151> PRIOR FILING DATE: 1998-04-23
19 <160> NUMBER OF SEQ ID NOS: 21
21 <170> SOFTWARE: PatentIn Ver. 2.1
23 <210> SEQ ID NO: 1
24 <211> LENGTH: 4272
25 <212> TYPE: DNA
26 <213> ORGANISM: Unknown Organism
28 <220> FEATURE:
29 <223> OTHER INFORMATION: Description of Unknown Organism: mammalian
30 SYNGAP-A
32 <220> FEATURE:
33 <221> NAME/KEY: CDS
34 <222> LOCATION: (1..3879, 3883..4272)
36 <400> SEQUENCE: 1
37 atg tcc tat gcc ccc ttc aga gat gta cgg gga ccc cct atg cac cga 48
38 Met Ser Tyr Ala Pro Phe Arg Asp Val Arg Gly Pro Pro Met His Arg
39 1 5 10 15
41 acc caa tac gtt cat tcc ccg tat gac cgt ccc ggt tgg aac ccc cgg 96
42 Thr Gln Tyr Val His Ser Pro Tyr Asp Arg Pro Gly Trp Asn Pro Arg
43 20 25 30
45 ttc tgc atc atc tct ggg aac cag ctg ctc atg ctg gat gag gat gag 144
46 Phe Cys Ile Ile Ser Gly Asn Gln Leu Leu Met Leu Asp Glu Asp Glu
47 35 40 45
49 ata cac ccc ctt ctg atc cgc gac cgg agg agc gag tcc agc cga aac 192
50 Ile His Pro Leu Leu Ile Arg Asp Arg Arg Ser Glu Ser Ser Arg Asn
51 50 55 60
53 aaa ctg ctg aga cgc acc gtc tct gtg cca gtg gag ggg cgg ccc cac 240
54 Lys Leu Leu Arg Arg Thr Val Ser Val Pro Val Glu Gly Arg Pro His
55 65 70 75 80
57 ggc gag cat gaa tac cac ttg ggt cgc tcg agg agg aag agt gtc ccc 288
58 Gly Glu His Glu Tyr His Leu Gly Arg Ser Arg Arg Lys Ser Val Pro
59 85 90 95
61 ggg ggg aaa cag tac agc atg gaa gcc gcc ccc gct gcg ccc ttc cgg 336
62 Gly Gly Lys Gln Tyr Ser Met Glu Ala Ala Pro Ala Ala Pro Phe Arg
63 100 105 110
65 ccc tcg caa ggc ttc ctg agc cgg agg cta aaa agc tcc atc aaa cgt 384
66 Pro Ser Gln Gly Phe Leu Ser Arg Arg Leu Lys Ser Ser Ile Lys Arg
67 115 120 125

```

RAW SEQUENCE LISTING

DATE: 08/18/2000

PATENT APPLICATION: US/09/294,298

TIME: 12:46:34

Input Set : A:\48235169.app

Output Set: N:\CRF3\08182000\I294298.raw

69	aca aag tca caa ccc aaa ctt gac cgg acc agc agc ttt cga cag atc	432
70	Thr Lys Ser Gln Pro Lys Leu Asp Arg Thr Ser Ser Phe Arg Gln Ile	
71	130 135 140	
73	ctg cct cgc ttc cga agt gct gac cat gac cgg gcc cgg ctg atg cag	480
74	Leu Pro Arg Phe Arg Ser Ala Asp His Asp Arg Ala Arg Leu Met Gln	
75	145 150 155 160	
77	agc ttc aag gag tct cac tcc cat gag tcc ctg ctg agt ccc agc agt	528
78	Ser Phe Lys Glu Ser His Ser His Glu Ser Leu Leu Ser Pro Ser Ser	
79	165 170 175	
81	gct gct gag gcc ctg gag ctc aac ctg gat gaa gac tcc att atc aag	576
82	Ala Ala Glu Ala Leu Glu Leu Asn Leu Asp Glu Asp Ser Ile Ile Lys	
83	180 185 190	
85	cca gta cac agc tcc atc ctg ggc cag gag ttc tgc ttt gag gta aca	624
86	Pro Val His Ser Ser Ile Leu Gly Gln Glu Phe Cys Phe Glu Val Thr	
87	195 200 205	
89	aca tcg tct ggg aca aaa tgt ttt gcc tgt cgg tct gca gcc gaa agg	672
90	Thr Ser Ser Gly Thr Lys Cys Phe Ala Cys Arg Ser Ala Ala Glu Arg	
91	210 215 220	
93	gac aaa tgg att gag aat cta cag agg gct gtg aaa ccc aac aag gac	720
94	Asp Lys Trp Ile Glu Asn Leu Gln Arg Ala Val Lys Pro Asn Lys Asp	
95	225 230 235 240	
97	aac agc cgc cgg gta gat aac gtg ctg aaa cta tgg atc ata gaa gct	768
98	Asn Ser Arg Arg Val Asp Asn Val Leu Lys Leu Trp Ile Ile Glu Ala	
99	245 250 255	
101	cga gag ctg ccc ccc aag aag cga tat tac tgc gag tta tgc ctg gac	816
102	Arg Glu Leu Pro Pro Lys Lys Arg Tyr Tyr Cys Glu Leu Cys Leu Asp	
103	260 265 270	
105	gac atg ctc tat gca cgg acc act tcc aag ccc cgc tca gcc tca gga	864
106	Asp Met Leu Tyr Ala Arg Thr Thr Ser Lys Pro Arg Ser Ala Ser Gly	
107	275 280 285	
109	gac act gtc ttt tgg ggc gag cac ttc gag ttt aac aac ctg cct gct	912
110	Asp Thr Val Phe Trp Gly Glu His Phe Glu Phe Asn Asn Leu Pro Ala	
111	290 295 300	
113	gtc cgg gcg ctg cgg ctg cat ctg tac cgt gac tcg gac aaa aag cgg	960
114	Val Arg Ala Leu Arg Leu His Leu Tyr Arg Asp Ser Asp Lys Lys Arg	
115	305 310 315 320	
117	aag aag gac aag gca ggc tac gtt ggc ctg gtg act gtt cca gtg gcc	1008
118	Lys Lys Asp Lys Ala Gly Tyr Val Gly Leu Val Thr Val Pro Val Ala	
119	325 330 335	
121	acc ctg gct ggg cgc cac ttc aca gag cag tgg tac ccc gtg acc ctg	1056
122	Thr Leu Ala Gly Arg His Phe Thr Glu Gln Trp Tyr Pro Val Thr Leu	
123	340 345 350	
125	cca aca gga agt ggg ggc tct ggg ggt atg ggc tcg ggg gga gga ggg	1104
126	Pro Thr Gly Ser Gly Gly Ser Gly Gly Met Gly Ser Gly Gly Gly Gly	
127	355 360 365	
129	ggg tca ggg ggc ggc tca ggg ggc aaa ggg aaa gga ggc tgt cct gct	1152
130	Gly Ser Gly Gly Gly Ser Gly Gly Lys Gly Lys Gly Gly Cys Pro Ala	
131	370 375 380	
133	gtg cgg ctg aag gcc cgt tac cag aca atg agt atc ctg ccc atg gag	1200

RAW SEQUENCE LISTING

DATE: 08/18/2000

PATENT APPLICATION: US/09/294,298

TIME: 12:46:34

Input Set : A:\48235169.app

Output Set: N:\CRF3\08182000\I294298.raw

134	Val	Arg	Leu	Lys	Ala	Arg	Tyr	Gln	Thr	Met	Ser	Ile	Leu	Pro	Met	Glu	
135	385					390				395						400	
137	cta	tat	aag	gag	ttt	gca	gaa	tat	gtg	acc	aac	cac	tac	cgc	atg	ctg	1248
138	Leu	Tyr	Lys	Glu	Phe	Ala	Glu	Tyr	Val	Thr	Asn	His	Tyr	Arg	Met	Leu	
139					405					410						415	
141	tgt	gcc	gtg	ctg	gag	ccc	gcc	ctc	aat	gtc	aag	ggc	aag	gag	gag	gtc	1296
142	Cys	Ala	Val	Leu	Glu	Pro	Ala	Leu	Asn	Val	Lys	Gly	Lys	Glu	Glu	Val	
143					420					425						430	
145	gct	agt	gca	ctg	gtt	cac	atc	ctg	caa	agc	aca	ggc	aag	gcc	aag	gac	1344
146	Ala	Ser	Ala	Leu	Val	His	Ile	Leu	Gln	Ser	Thr	Gly	Lys	Ala	Lys	Asp	
147					435					440						445	
149	ttc	ctt	tca	gac	atg	gcc	atg	tca	gag	gta	gac	cgg	ttc	atg	gag	cgg	1392
150	Phe	Leu	Ser	Asp	Met	Ala	Met	Ser	Glu	Val	Asp	Arg	Phe	Met	Glu	Arg	
151					450					455						460	
153	gaa	cac	ctc	ata	ttc	cgc	gag	aac	acg	ctc	gcc	act	aaa	gcc	ata	gaa	1440
154	Glu	His	Leu	Ile	Phe	Arg	Glu	Asn	Thr	Leu	Ala	Thr	Lys	Ala	Ile	Glu	
155	465					470										480	
157	gag	tat	atg	aga	ctg	att	ggc	cag	aaa	tac	ctc	aag	gat	gcc	att	ggg	1488
158	Glu	Tyr	Met	Arg	Leu	Ile	Gly	Gln	Lys	Tyr	Leu	Lys	Asp	Ala	Ile	Gly	
159					485					490						495	
161	gag	ttc	atc	cgg	gct	ctg	tat	gaa	tct	gag	gag	aac	tgt	gaa	gta	gac	1536
162	Glu	Phe	Ile	Arg	Ala	Leu	Tyr	Glu	Ser	Glu	Glu	Asn	Cys	Glu	Val	Asp	
163					500					505						510	
165	ccc	atc	aag	tgc	aca	gcg	tcc	agt	ctg	gca	gag	cac	cag	gcc	aac	ctg	1584
166	Pro	Ile	Lys	Cys	Thr	Ala	Ser	Ser	Leu	Ala	Glu	His	Gln	Ala	Asn	Leu	
167					515					520						525	
169	cgg	atg	tgc	tgt	gag	ttg	gcc	ctg	tgc	aag	gtg	gtc	aac	tcc	cat	tgc	1632
170	Arg	Met	Cys	Cys	Glu	Leu	Ala	Leu	Cys	Lys	Val	Val	Asn	Ser	His	Cys	
171					530					535						540	
173	gtg	ttc	cgc	agg	gag	ctg	aag	gag	gtg	ttt	gca	tca	tgg	cgg	ctg	cgc	1680
174	Val	Phe	Pro	Arg	Glu	Leu	Lys	Glu	Val	Phe	Ala	Ser	Trp	Arg	Leu	Arg	
175	545					550										560	
177	tgt	gca	gag	cgg	ggc	cgg	gag	gac	att	gct	gac	agg	ctg	atc	agc	gcc	1728
178	Cys	Ala	Glu	Arg	Gly	Arg	Glu	Asp	Ile	Ala	Asp	Arg	Leu	Ile	Ser	Ala	
179					565					570						575	
181	tcg	ctc	ttc	ctg	cgc	ttc	ctc	tgc	cgc	gcc	atc	atg	tcg	ccc	agt	ctg	1776
182	Ser	Leu	Phe	Leu	Arg	Phe	Leu	Cys	Pro	Ala	Ile	Met	Ser	Pro	Ser	Leu	
183					580					585						590	
185	ttt	gga	ctg	atg	cag	gag	tac	cca	gat	gag	cag	acc	tca	cga	acc	ctc	1824
186	Phe	Gly	Leu	Met	Gln	Glu	Tyr	Pro	Asp	Glu	Gln	Thr	Ser	Arg	Thr	Leu	
187					595					600						605	
189	acc	ctc	atc	gcc	aag	gtt	atc	cag	aac	ctg	gcc	aac	ttt	tcc	aag	ttt	1872
190	Thr	Leu	Ile	Ala	Lys	Val	Ile	Gln	Asn	Leu	Ala	Asn	Phe	Ser	Lys	Phe	
191					610					615						620	
193	acc	tca	aag	gag	gac	ttc	ctg	ggc	ttc	atg	aac	gag	ttt	ctg	gag	ctg	1920
194	Thr	Ser	Lys	Glu	Asp	Phe	Leu	Gly	Phe	Met	Asn	Glu	Phe	Leu	Glu	Leu	
195	625					630										640	
197	gag	tgg	ggg	tct	atg	cag	caa	ttc	ttg	tat	gag	ata	tcc	aac	ctg	gac	1968
198	Glu	Trp	Gly	Ser	Met	Gln	Gln	Phe	Leu	Tyr	Glu	Ile	Ser	Asn	Leu	Asp	

RAW SEQUENCE LISTING

DATE: 08/18/2000

PATENT APPLICATION: US/09/294,298

TIME: 12:46:34

Input Set : A:\48235169.app

Output Set: N:\CRF3\08182000\I294298.raw

199		645		650		655	
201	aca	ctg	acc	aac	agc	agc	agc
202	Thr	Leu	Thr	Asn	Ser	Ser	Ser
203				660		665	
205	gag	ctc	tcc	aca	ctt	cac	gcc
206	Glu	Leu	Ser	Thr	Leu	His	Ala
207				675		680	
209	agc	aag	gaa	gcc	ctc	ctg	aag
210	Ser	Lys	Glu	Ala	Leu	Leu	Lys
211				690		695	
213	gac	atc	agc	aca	gcc	ctg	agg
214	Asp	Ile	Ser	Thr	Ala	Leu	Arg
215	705					710	
217	cgc	cag	agc	gag	cgc	gct	cgg
218	Arg	Gln	Ser	Glu	Arg	Ala	Arg
219						725	
221	tca	gcc	gag	atg	cag	ggc	tac
222	Ser	Ala	Glu	Met	Gln	Gly	Tyr
223						740	
225	gac	ctt	cag	tcc	ttc	atg	gct
226	Asp	Leu	Gln	Ser	Phe	Met	Ala
227						755	
229	gct	cgc	ctc	ccc	tcc	cca	acc
230	Ala	Arg	Leu	Pro	Ser	Pro	Lys
231						770	
233	ggt	ggg	ggt	aaa	gac	ctg	ttc
234	Gly	Gly	Gly	Lys	Asp	Leu	Phe
235	785					790	
237	tcc	tcc	cca	gca	tac	tgc	acg
238	Ser	Ser	Pro	Ala	Tyr	Cys	Thr
239						805	
241	cag	aag	atg	ctg	agt	gtc	aac
242	Gln	Lys	Met	Leu	Ser	Val	Asn
243						820	
245	ggc	gac	ggg	cct	ggg	ggc	cgc
246	Gly	Asp	Gly	Pro	Gly	Gly	Arg
247						835	
249	gca	gct	gtt	ggg	gac	ctg	ttg
250	Ala	Ala	Val	Gly	Asp	Leu	Leu
251						850	
253	gcc	ttg	ggg	ttg	cgg	cct	gca
254	Ala	Leu	Gly	Leu	Arg	Pro	Ala
255	865					870	
257	ggc	tct	tcc	atc	aca	gca	gcc
258	Gly	Ser	Ser	Ile	Thr	Ala	Ala
259						885	
261	act	acg	gat	ggt	gtc	ccc	gcc
262	Thr	Thr	Asp	Gly	Val	Pro	Ala
263						900	
							905
							910
2016							
2064							
2112							
2160							
2208							
2256							
2304							
2352							
2400							
2448							
2496							
2544							
2592							
2640							
2688							
2736							

RAW SEQUENCE LISTING
 PATENT APPLICATION: US/09/294,298

DATE: 08/18/2000
 TIME: 12:46:34

Input Set : A:\48235169.app
 Output Set: N:\CRF3\08182000\I294298.raw

265	cag aac cct ctc ttc cat atg gct gcc gat gga cca ggg ccc cca gca	2784
266	Gln Asn Pro Leu Phe His Met Ala Ala Asp Gly Pro Gly Pro Pro Ala	
267	915 920 925	
269	ggc cat gga ggg agc agt ggc cat ggt cca cct tcc tcc cat cac cac	2832
270	Gly His Gly Gly Ser Ser Gly His Gly Pro Pro Ser Ser His His His	
271	930 935 940	
273	cac cac cac cat cac cat cac cga ggg gga gaa ccc cca ggg gac act	2880
274	His His His His His His His Arg Gly Gly Glu Pro Pro Gly Asp Thr	
275	945 950 955 960	
277	ttt gcc ccg ttc cat ggc tat agc aag agc gag gac ctc tct aca ggg	2928
278	Phe Ala Pro Phe His Gly Tyr Ser Lys Ser Glu Asp Leu Ser Thr Gly	
279	965 970 975	
281	gtc cct aag ccc cct gcg gcc tcc atc ctt cac agc cac agc tac agt	2976
282	Val Pro Lys Pro Pro Ala Ala Ser Ile Leu His Ser His Ser Tyr Ser	
283	980 985 990	
285	gat gag ttt gga ccc tct ggt act gat ttt acc cgt cgg cag ctc tca	3024
286	Asp Glu Phe Gly Pro Ser Gly Thr Asp Phe Thr Arg Arg Gln Leu Ser	
287	995 1000 1005	
289	ctt cag gac aac cta cag cac atg ctc tcc ccg ccc cag atc acc atc	3072
290	Leu Gln Asp Asn Leu Gln His Met Leu Ser Pro Pro Gln Ile Thr Ile	
291	1010 1015 1020	
293	ggt ccc cag agg cca gct ccc tca ggg cca gga ggg ggc agt ggt ggg	3120
294	Gly Pro Gln Arg Pro Ala Pro Ser Gly Pro Gly Gly Gly Ser Gly Gly	
295	1025 1030 1035 1040	
297	ggc agt ggt ggg ggc ggt ggg ggc cag cca cct ccc ttg cag agg ggc	3168
298	Gly Ser Gly Gly Gly Gly Gly Gln Pro Pro Pro Leu Gln Arg Gly	
299	1045 1050 1055	
301	aaa tct cag cag ttg aca gtg agt gct gcc cag aaa ccc cgg ccg tcc	3216
302	Lys Ser Gln Gln Leu Thr Val Ser Ala Ala Gln Lys Pro Arg Pro Ser	
303	1060 1065 1070	
305	agc ggg aac cta ttg cag tcc ccg gaa cca agt tat ggt cct gcc cgt	3264
306	Ser Gly Asn Leu Leu Gln Ser Pro Glu Pro Ser Tyr Gly Pro Ala Arg	
307	1075 1080 1085	
309	cca cgg caa cag agc ctc agc aaa gag ggc agc att ggg ggc agc ggg	3312
310	Pro Arg Gln Gln Ser Leu Ser Lys Glu Gly Ser Ile Gly Gly Ser Gly	
311	1090 1095 1100	
313	ggc agc ggt ggc gga ggg ggt ggg ggc ctc aag ccc tcc atc acc aag	3360
314	Gly Ser Gly Gly Gly Gly Gly Gly Leu Lys Pro Ser Ile Thr Lys	
315	1105 1110 1115 1120	
317	cag cat tcc cag act cca tcc acg ctg aac ccc acg atg ccg gcc tcg	3408
318	Gln His Ser Gln Thr Pro Ser Thr Leu Asn Pro Thr Met Pro Ala Ser	
319	1125 1130 1135	
321	gag cgg act gta gcc tgg gtg tcc aat atg cct cac ctg tcc gct gac	3456
322	Glu Arg Thr Val Ala Trp Val Ser Asn Met Pro His Leu Ser Ala Asp	
323	1140 1145 1150	
325	atc gag agt gca cac att gag cgg gaa gag tac aag ctg aag gag tac	3504
326	Ile Glu Ser Ala His Ile Glu Arg Glu Glu Tyr Lys Leu Lys Glu Tyr	
327	1155 1160 1165	
329	tcg aag tcc atg gac gag agc cga ctg gac agg gtg aag gag tac gag	3552

VERIFICATION SUMMARY DATE: 08/18/2000
PATENT APPLICATION: US/09/294,298 TIME: 12:46:35

Input Set : A:\48235169.app
Output Set: N:\CRF3\08182000\I294298.raw